Департамент образования и науки города Москвы
Государственное автономное образовательное учреждение
высшего образования города Москвы
«Московский городской педагогический университет»
Институт цифрового образования
Департамент информатики, управления и технологий

ДИСЦИПЛИНА: «Распределенные системы»

**Отчет по практической работе №2
Тема:
«Multicast»**

Выполнил: Лыгин М. В.
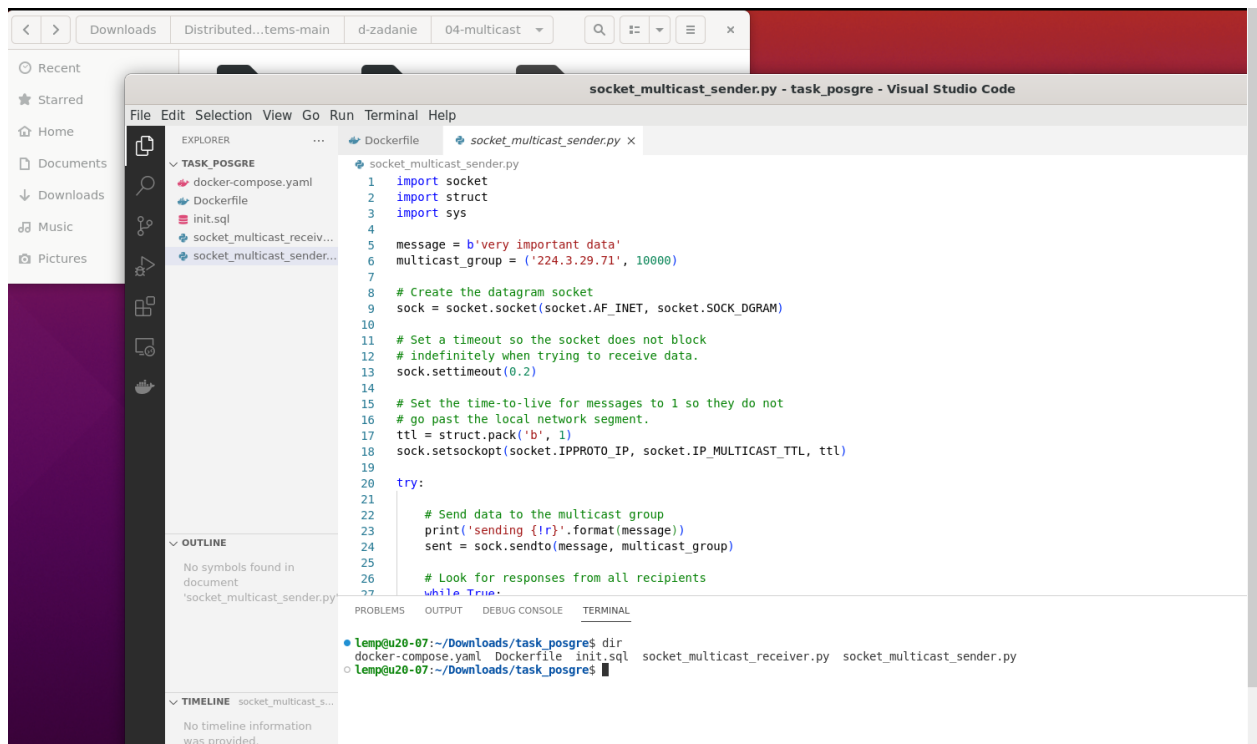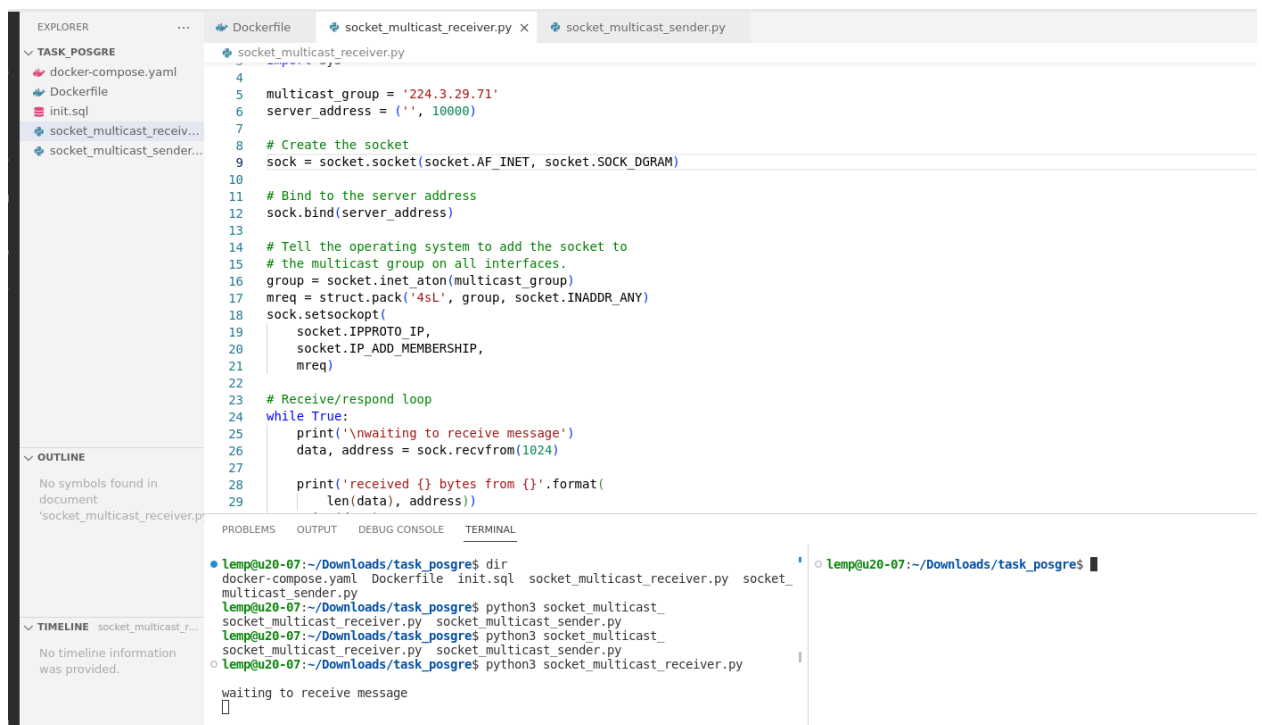группа: ТП-191

Москва
2022

Рисунок 1

```python
import socket
import struct
import sys

message = b'very important data'
multicast_group = ('224.3.29.71', 10000)

# Create the datagram socket
sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)

# Set a timeout so the socket does not block
# indefinitely when trying to receive data.
sock.settimeout(0.2)

# Set the time-to-live for messages to 1 so they do not
# go past the local network segment.
ttl = struct.pack('b', 1)
sock.setsockopt(socket.IPPROTO_IP, socket.IP_MULTICAST_TTL, ttl)

try:

    # Send data to the multicast group
    print('sending {!r}'.format(message))
    sent = sock.sendto(message, multicast_group)

    # Look for responses from all recipients
    while True:
```

```
lemp@u20-07:~/Downloads/task_posgre$ dir
docker-compose.yaml  Dockerfile  init.sql  socket_multicast_receiver.py  socket_multicast_sender.py
lemp@u20-07:~/Downloads/task_posgre$
```


Рисунок 2

```python
multicast_group = '224.3.29.71'
server_address = ('', 10000)

# Create the socket
sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)

# Bind to the server address
sock.bind(server_address)

# Tell the operating system to add the socket to
# the multicast group on all interfaces.
group = socket.inet_aton(multicast_group)
mreq = struct.pack('4sL', group, socket.INADDR_ANY)
sock.setsockopt(
    socket.IPPROTO_IP,
    socket.IP_ADD_MEMBERSHIP,
    mreq)

# Receive/respond loop
while True:
    print('\nwaiting to receive message')
    data, address = sock.recvfrom(1024)

    print('received {} bytes from {}'.format(
        len(data), address))
```

```
lemp@u20-07:~/Downloads/task_posgre$ dir
docker-compose.yaml  Dockerfile  init.sql  socket_multicast_receiver.py  socket_
multicast_sender.py
lemp@u20-07:~/Downloads/task_posgre$ python3 socket_multicast_
socket_multicast_receiver.py  socket_multicast_sender.py
lemp@u20-07:~/Downloads/task_posgre$ python3 socket_multicast_
socket_multicast_receiver.py  socket_multicast_sender.py
lemp@u20-07:~/Downloads/task_posgre$ python3 socket_multicast_receiver.py

waiting to receive message
```

```
lemp@u20-07:~/Downloads/task_posgre$
```

```
20        socket.IP_ADD_MEMBERSHIP,
21        mreq)
22
23    # Receive/respond loop
24    while True:
25        print('\nwaiting to receive message')
26        data, address = sock.recvfrom(1024)
27
28        print('received {} bytes from {}'.format(
29            len(data), address))
30        print(data)
31
32        print('sending acknowledgement to', address)
```

OUTLINE
No symbols found in document 'socket_multicast_receiver.py'

TIMELINE socket_multicast_r...
No timeline information was provided.

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
received 19 bytes from ('172.26.35.25', 46661)
b'very important data'
sending acknowledgement to ('172.26.35.25', 46661)

waiting to receive message
received 19 bytes from ('172.26.35.132', 39803)
b'very important data'
sending acknowledgement to ('172.26.35.132', 39803)

waiting to receive message
received 19 bytes from ('172.26.35.20', 45631)
b'very important data'
sending acknowledgement to ('172.26.35.20', 45631)

waiting to receive message
```

```
waiting to receive
received b'ack' from ('172.26.35.139', 10000)
waiting to receive
received b'ack' from ('172.26.35.31', 10000)
waiting to receive
received b'ack' from ('172.26.35.25', 10000)
waiting to receive
received b'ack' from ('172.26.35.121', 10000)
waiting to receive
received b'ack' from ('172.26.35.122', 10000)
waiting to receive
received b'ack' from ('172.26.35.20', 10000)
waiting to receive
timed out, no more responses
closing socket
```

Рисунок 3

EXPLORER

TASK_POSGRE
- docker-compose.yaml
- Dockerfile
- init.sql
- socket_multicast_receiv...
- socket_multicast_sender...

Dockerfile   socket_multicast_receiver.py   socket_multicast_sender.py

socket_multicast_sender.py

```
1    import socket
2    import struct
3    import sys
4
5    message = b'privet'
6    multicast_group = ('224.3.29.71', 10000)
7
8    # Create the datagram socket
9    sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
10
11    # Set a timeout so the socket does not block
12    # indefinitely when trying to receive data.
13    sock.settimeout(0.2)
14
15    # Set the time-to-live for messages to 1 so they do not
16    # go past the local network segment.
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
b'mihail lygin privet'
sending acknowledgement to ('172.26.35.127', 46846)

waiting to receive message
received 6 bytes from ('172.26.35.20', 57531)
b'PRIVET'
sending acknowledgement to ('172.26.35.20', 57531)

waiting to receive message
received 6 bytes from ('172.26.35.30', 37645)
b'privet'
sending acknowledgement to ('172.26.35.30', 37645)

waiting to receive message
received 6 bytes from ('172.26.35.25', 60903)
b'privet'
sending acknowledgement to ('172.26.35.25', 60903)

waiting to receive message
received 19 bytes from ('172.26.35.37', 49372)
b'very important data'
sending acknowledgement to ('172.26.35.37', 49372)

waiting to receive message
received 19 bytes from ('172.26.35.124', 46095)
b'very important data'
sending acknowledgement to ('172.26.35.124', 46095)

waiting to receive message
received 19 bytes from ('172.26.35.123', 40551)
```

OUTLINE
No symbols found in document 'socket_multicast_sender.py'

TIMELINE socket_multicast_s...
File Saved   now

```
waiting to receive
received b'ack' from ('172.26.35.127', 10000)
waiting to receive
received b'ack' from ('172.26.35.139', 10000)
waiting to receive
received b'ack' from ('172.26.35.29', 10000)
waiting to receive
received b'ack' from ('172.26.35.20', 10000)
waiting to receive
received b'ack' from ('172.26.35.124', 10000)
waiting to receive
received b'ack' from ('172.26.35.128', 10000)
waiting to receive
received b'ack' from ('172.26.35.30', 10000)
waiting to receive
received b'ack' from ('172.26.35.133', 10000)
waiting to receive
received b'ack' from ('172.26.35.25', 10000)
waiting to receive
received b'ack' from ('172.26.35.123', 10000)
waiting to receive
received b'ack' from ('172.26.35.121', 10000)
waiting to receive
received b'ack' from ('172.26.35.122', 10000)
waiting to receive
received b'ack' from ('172.26.35.37', 10000)
waiting to receive
received b'ack' from ('172.26.35.31', 10000)
waiting to receive
timed out, no more responses
```

Рисунок 4